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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/773,947 | 02/06/2004 | You-Sun Wu | LCOM-0656 | 7980 |
| 23377 | 7590 | 05/11/2005 | EXAMINER | |
| WOODCOCK WASHBURN LLP ONE LIBERTY PLACE, 46TH FLOOR 1650 MARKET STREET PHILADELPHIA, PA 19103 | | | SUMMONS, BARBARA | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2817 | |

DATE MAILED: 05/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/773,947

Applicant(s)

WU ET AL.

Examiner

Barbara Summons

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2004 (pre-amendment).
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/14/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 4/14/04 included a page 1 of 4 that was inadvertently not scanned by the Office. A copy was faxed to the Examiner on 5/9/05. Therefore, all references have been considered and all pages of the IDS have been initialed and signed and copies thereof being sent to Applicants.

Specification

2. The disclosure is objected to because of the following informalities: On page 4, on line 3 of section [0022], "combiner" should be - - divider - - (see line 2 of section [0022]). It is understood that the device 200 can function as a divider or a combiner (see section [0021]), but once it is identified as being "set up as a divider" (line 1 of section [0022]), it should be referred to as a - - divider - - thereafter. Therefore similarly, on page 5, on line 2 thereof, "combiner" should be changed to - - divider - -. On page 6, on line 2 of section [0031], "material" should be followed by - - can - - (or by - - may - -).

Appropriate correction is required.

Claim Objections

3. Claim 2 is objected to because of the following informalities:

In claim 2, on line 2 thereof, "the substrate" should be - - a substrate - - since no substrate has been previously mentioned in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 2 and 6-11 are rejected under 35 U.S.C. § 102(b) as being anticipated by Stones et al. U.S. 6,242,984 (cited by Applicants).

Regarding claims 1, 7 and 8, Figs. 1 and 2 (i.e. the divider 100 of Fig. 1 is on the backside of the combiner 200 in Fig. 2) of Stones et al. disclose a radial power divider/combiner comprising: a divider 100 with a first antenna, being the inner conductor of input coaxial connector 102 (see col. 3, lines 50-60), at the center of a “substrate”, being the metal block on which the device is formed (see col. 3, line 66 to col. 4, line 3); the first antenna transmitting a signal through a plurality of waveguides 104-126 extending from the center to the periphery of the “substrate” and including waveguides 404-426 at the periphery of the substrate; and a plurality of second antennas, being the microstrip antennas of the waveguide to microstrip transitions 500, disposed at the respective ends of the waveguides (see col. 4, lines 61-64 and Fig. 3) receiving the signal. That is, waveguides 104 and 404, for example, make one continuous waveguide from the center to the periphery of the substrate and the transition 500 is at the end of that total continuous waveguide (ibid.).

Before continuing, it should be noted that the term “substrate” is used loosely by Applicants (see sections [0027] and [0031]) and the metal block of Stones is considered to be a “substrate” in the same manner as Applicants’ metal “base” (ibid.).

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Regarding claim 6, the waveguides are formed by grooves in the metal block filled with dielectric (see col. 4, lines 4-8). Regarding claim 9, each of the second antennas is coupled to a respective amplifier in circuitry 304-326 (see col. 5, lines 32-36). Regarding claims 10 and 11, the entire device of Fig. 2 is a reciprocal device, such that switching the input/output makes the combiner 200 a divider and the divider 100 a combiner.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 2-19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Saito et al. U.S. 4,562,409 in view of Hsu et al. U.S. 4,590,446 (cited by Applicants).

Figs. 5 and 6 of Saito et al. disclose a radial power divider/combiner comprising: a first antenna 10 disposed at the center of resonator body 1; a plurality of waveguides

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(40 combined with 6 in Fig. 5) extending from the center to the periphery of the resonator body; and a plurality of second antennas (i.e. MIC antennas or coaxial antennas (see col. 7, lines 2-15) each disposed near a respective end of a respective one of the waveguides 6.

Regarding claims 12-19, Saito et al. discloses a radial power divider-combiner with a divider D (Fig. 8) having a first/input antenna A3, at a center of divider D, receive a signal and transmit the signal through waveguides (40,6) to second antennas, at the periphery of divider D, connected between the waveguides 6 and lines 81-88 (col. 7, lines 2-15) feeding to the amplifiers, the signal then being provided to lines 91-98 and to fourth/input antennas between lines 91-98 and the waveguides 6 of the combiner C, the signal being transmitted through the waveguides (6,40) to a third/output antenna A4 at the center of combiner C. The device is a reciprocal device so that the IN3 and OUT3 can be switched and the signal will flow in the opposite direction.

However, Saito et al. is silent as to how the waveguides are formed and so does not explicitly disclose a "substrate", although the center and periphery of the waveguide device can be seen, for example, in Fig. 5.

Hsu et al. discloses an analogous art power combiner/divider (see Fig. 2) and discloses forming the waveguides by forming a base 32 (Fig. 1) and a cover 30 with the waveguides being formed as grooves in one or both of the base and the cover, and in the embodiment discussed, in the cover 30 (see col. 3, lines 57-62).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the power divider/combiner of Saito et al.,

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if even necessary, such that the device and associated waveguides would have been formed of a base "substrate" and a cover, because Saito et al. is silent as to how the waveguide divider/combiners are constructed, thereby suggesting to one of ordinary skill that any manner of formation, such as the base and cover suggested by the exemplary teaching of Hsu et al. (col. 3, lines 57-62) would have been usable therewith. Regarding the directions of the antennas recited in claims 3-5, Saito et al. discloses coaxial antenna connecting to lines 81-88 (Fig. 8) and 91-98 (see col. 7, lines 11-14), and whether these antennas would extend from the same direction or opposite directions from the center antennas (10 in Figs. 4-6 and A3/A4 in Fig. 8) would have been dependent upon the intended use and hence the locations of the peripheral devices to which the divider/combiner needed to be connected, as would have been known by one of ordinary skill in the art.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara Summons whose telephone number is (571) 272-1771. The examiner can normally be reached on M-Th, M-Fr.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pascal can be reached on (571) 271-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

bs
May 9, 2005



BARBARA SUMMONS
PRIMARY EXAMINER